ATTACHMENT 3 **January 1998**

STATUS UPDATE OF NORTH COAST AND CENTRAL VALLEY STEELHEAD MANAGEMENT ACTIONS

INTRODUCTION

The Department of Fish and Game has been actively pursuing restoration of steelhead and rehabilitation of steelhead habitat since the early 1980's. Restoration actions have been accelerated since the inception of the Salmon, Steelhead, and Anadromous Fisheries Program in 1988. In 1996, the Department published the *Steelhead Restoration and Management Plan for California* (Steelhead Plan), which provides guidelines and objectives for restoration and protection measures to be undertaken.

The Steelhead Plan recognizes that restoration of California's steelhead populations requires a broad approach that emphasizes ecosystem restoration. It focuses on restoration of naturally-produced stocks not only for statutory reasons, but also because of their importance in maintaining genetic and biological diversity. The Steelhead Plan presents a historical account of the decline of California's steelhead population, and suggests restoration measures both on a broad, programmatic scale and on a stream-specific scale.

This report briefly describes the current status of north coast and Central Valley steelhead populations and discusses measures the Department and others have undertaken to protect and restore steelhead populations.

POPULATION STATUS

OVERVIEW

The *California Fish and Wildlife Plan* of 1965 estimated the total annual statewide spawning escapement of steelhead in the early 1960's to be 603,000. Today, rough estimates indicate that the total statewide population may be as low as 250,000 adults, less than half the population of 30 years ago. Entire runs, particularly on the south coast, have become extirpated within the last two decades. The major cause of the decline in California is freshwater habitat loss and degradation. This has resulted mainly from three factors: inadequate stream flows, blocked access to historic spawning and rearing areas, and land-use activities that discharge excessive amounts of sediment and debris into watercourses.

NORTH COAST

The historic range of steelhead on the north coast (north of San Francisco Bay) has not been reduced as drastically as it has in other areas of the State. Consequently, this area has the greatest amount of steelhead habitat in the State and the most abundant populations. Steelhead runs in north coast drainages are comprised mostly of naturally-produced (wild) fish.

Major factors impacting north coast steelhead stocks are watershed disturbances (caused mainly by logging on unstable and steep slopes, agriculture, and road building) and water diversions. Poaching is a potential problem, especially for summer steelhead, which over-summer

in freshwater pools. Urbanization and gravel mining operations have also caused problems on some central coast streams. Predation by introduced Sacramento squawfish is a serious problem in parts of the Eel River basin.

The Smith River was estimated to have a spawning escapement of 30,000 adult steelhead in the 1960's. Currently, steelhead populations appear to be healthy in this system although the recent drought appears to have reduced available spawning and rearing habitat. The Smith River is presently protected by a federal Wild and Scenic River designation and has one of the most undisturbed watersheds in California.

The Klamath-Trinity river system supports the greatest number of steelhead in California. However, these stocks have declined from an estimated run size of 283,000 adults in the early 1960's to about 150,000 in the early 1980's. Eight years of run size estimates for the Trinity River upstream of Willow Creek range from 7,833 to 37,276 and average 15,185 adults.

Steelhead runs in the Eel River system have declined significantly. Annual counts of adults at Cape Horn Dam on the upper mainstem Eel River declined from an average of 4,400 during the 1930's to about 500 today. Counts made at Benbow Dam on the South Fork Eel River also show a decline from historical numbers, from an average of 18,784 during the 1940's to 3,355 during the 1970's. Current populations may, in part, be limited by predation or other adverse effects from introduced Sacramento squawfish, which are now widespread throughout the system.

Summer steelhead populations are found in tributaries of the Smith, Klamath, Trinity, Mad, and Eel river systems and in Redwood Creek. Nowhere in California are summer steelhead abundant, and the runs in many streams consist of less than 100 fish. The present estimated annual statewide abundance of summer steelhead is about 2,000 adults.

There are four Department hatcheries in the north coast area: Iron Gate Hatchery on the Klamath River, Trinity River Hatchery, Warm Springs Hatchery in the Russian River system, and Mad River Hatchery. These four hatcheries produce approximately 1.7 million steelhead smolts per year. Except for Mad River Hatchery, all are production hatcheries to mitigate for the loss of salmon and steelhead habitat upstream of water projects.

CENTRAL VALLEY

Steelhead ranged throughout the tributaries of the Sacramento and San Joaquin rivers prior to dam construction, water development, and watershed perturbations of the 19th and 20th centuries. Populations have been most severely affected by dams blocking access to the headwaters of all the major tributaries, consequently most runs are maintained through artificial production. The average annual run size (hatchery and wild) in the Sacramento River system above the mouth of the Feather River in the 1950's was estimated to be 20,540 fish. The annual run size for the total Sacramento River system in 1991-92 was probably less than 10,000 adult fish.

The decline of Central Valley naturally-produced steelhead has been greater than that of the hatchery stocks: numbers of wild steelhead above Red Bluff Diversion Dam (RBDD) on the

Sacramento River have decreased from an average annual run size of roughly 12,900 in the late 1960's to approximately 500 in 1992-93. The composition of the steelhead population in the 1950's, on the average, was comprised of 88% naturally-produced fish. Presently, approximately 10% to 30% of the adults returning to spawn in the Sacramento system above RBDD are of natural origin. Wild stocks are mostly confined to the upper Sacramento River above RBDD, and Deer, Mill, and Antelope creeks and the Yuba River.

Impacts to natural and hatchery stocks in the Sacramento River system are due mostly to water development: inadequate instream flows caused by water diversions; rapid flow fluctuations due to water conveyance needs; lack of cold water releases from reservoirs; and loss of spawning and rearing habitat due to dams which block access. Water export in the south delta could have a detrimental effect on steelhead smolts in the Sacramento-San Joaquin delta/estuary as they migrate to the ocean.

The wild stocks in Mill, Deer, and Antelope creeks are at low levels. Annual counts made at Clough Dam on Mill Creek from 1953 to 1963 ranged from 417 to 2,269 adults. In 1964, 1,006 adult steelhead were counted at Vina Dam on Deer Creek. In fall and winter of 1993, an estimated 28 adult steelhead migrated into Mill Creek and no steelhead were observed in Deer Creek during this same time period.

The Feather, Yuba, and American rivers are major tributaries to the lower Sacramento River and at one time supported large populations of steelhead. Today, the historical spawning and rearing habitats of these rivers are inaccessible due to the construction of large dams. Inadequate habitat conditions for juvenile rearing in the lower reaches severely limits wild steelhead production in the Feather and American rivers. Feather River and Nimbus hatcheries each produce about 400,000 steelhead yearlings annually to mitigate for Oroville and Folsom dams, respectively.

The Yuba River still has natural production and is managed by the Department as a naturally sustained population. The run size in the Yuba River in 1984 was estimated to be about 2,000 steelhead. Current status of this population is unknown, although it continues to support a steelhead fishery. The Yuba River is essentially the only wild steelhead fishery remaining in the Central Valley.

There is some historical documentation regarding steelhead distribution in the San Joaquin River system. Adult steelhead were observed at a fish ladder on the Tuolumne River in the early 1940's. The installation of diversion dams on the major tributaries in the late 19th and early 20th centuries probably caused a decline in steelhead numbers prior to the early fish surveys that took place in the 1930's and 40's. Based on spring-run chinook salmon distributions in this drainage, it is likely that steelhead were present in the San Joaquin River and tributaries from at least the San Joaquin River headwaters northward. A small, remnant run of steelhead still persists in the Stanislaus River. Steelhead were also observed in the Tuolumne River in 1983, and a few large rainbow trout that appear to be steelhead enter the Merced River Hatchery every year.

FUNDING SOURCES FOR RESTORATION

There are several potential sources for funding anadromous fish restoration projects by agencies and non-profit private groups. Most projects focus on coho and chinook salmon restoration, but some benefit steelhead populations as well. Currently, only one fund is directed solely to steelhead restoration. Other currently available funding sources are directed exclusively to salmon restoration or to both salmon and steelhead restoration. Fund availability from each source varies annually. State funding for salmon and steelhead restoration is administered by the Department's Fishery Restoration Grant Program, the Department's Central Valley Restoration Program, the Department's Steelhead program, or by the Wildlife Conservation Board through several of its programs.

Cigarette and Tobacco Products Surtax Fund (Proposition 99)

The Public Resources Account within this initiative provides funds for fish habitat restoration. The initiative directed 5 percent of total fund revenue to the account. Of this, the initiative directed half, on an equal basis, to restoration of fish, waterfowl, and wildlife habitat. Because of legal constraints, no Proposition 99 funds are available for fish rearing activities.

Proposition 99 funds available for fish habitat restoration projects have declined dramatically since they were first made available in fiscal year 1989/90, declining from $1.5 million to the current $116,000 annual appropriation. However, Proposition 99 funds provide significant funding for staffing of the Department Salmon, Steelhead Trout, and Anadromous Fisheries Program, particularly in that they match Federal Aid in Sport Fish Restoration Act funds, which provide the bulk of funding for the program.

Commercial Salmon Stamp Account

Legislation establishing this funding source for salmon restoration was sponsored by California's commercial salmon fishing and commercial passenger salmon fishing vessel industries in the early 1980's. The legislation assesses a fee on commercial fishers and operators and crew of commercial passenger salmon fishing vessels, the proceeds of which are directed to projects to increase ocean salmon landings. Projects are recommended by an advisory committee, appointed by the Director. Although projects have salmon restoration as highest priority, often restoration of instream habitat results in improved conditions for steelhead as well. The account has been the only continuous source of funding for salmon restoration since the program began nearly 20 years ago.

Fish and Game Preservation Fund

Through the 1980's, this fund provided significant funding for salmon and steelhead restoration. Funding from this account for this purpose has declined to the point of being essentially nonexistent since the end of that decade.

California Wildlife, Coastal, and Park Land Conservation Fund of 1988 (Proposition 70)

This initiative, approved by California voters in 1988, provided $17 million to the Department, including $10 million for salmon stream restoration and $6 million for restoration of

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wild trout and native steelhead. Restoration of salmon streams benefits steelhead in streams where the two species coexist, although projects are recommended based on benefits to salmon. Estimation of improvement to steelhead from salmon restoration projects is at best an educated guess. Funding of $800,000 was made available from the $6 million available for wild trout and native steelhead to construct fishways on two steelhead streams in southern California. The remainder of funds from this account were directed to resident wild trout projects.

Steelhead Trout Catch Report-Restoration Card.

The Steelhead Report Card program began in 1993 with implementation of AB 2187, which required that all anglers fishing in steelhead waters purchase and complete a catch report card for steelhead. The purpose of this new program is to collect and analyze harvest and sportfishing information and to provide a specific funding source for stream restoration and other projects to benefit steelhead populations. The legislation required that all revenues be used only for steelhead restoration.

Proposals for work in the area of steelhead habitat restoration, cooperative steelhead rearing, and public education are considered annually for funding through the Department's Fishery Restoration Grants Program. Approximately one-half to two-thirds of this dedicated fund (this will vary with the number of cards sold) may be available annually for steelhead restoration work. Top priority for funding will be given to projects directed at restoring steelhead populations primarily through habitat restoration. Temporary steelhead rearing projects must be operated in conjunction with specific steelhead habitat restoration projects or for the prevention of native stock extirpation.

Fisheries Restoration Account.

The Keene-Nielsen Fisheries Restoration Act of 1985 created this account, funded from Tidelands Oil revenue. Approximately $11 million were appropriated to the account between 1985 and 1987. Amendment of the enabling statutes in 1987 provided a mechanism for ongoing appropriation of Tidelands Oil funds to the account. Except for fiscal year 1988/89, when $1.125 million were appropriated under the new mechanism, Section 11.50 of the annual Budget Act has specified no transfer of funds to the account. The appropriation mechanism was supplanted in 1997 with passage of legislation which established the Salmon and Steelhead Trout Restoration Account (Chapter 293, Statutes of 1997, also referred to as SB 271), and created a new mechanism for appropriation of Tidelands Oil funds to the new account. The more recent legislation did, however, tie expenditures from the new account to provisions of the 1985 legislation.

Wildlife Restoration Fund.

This fund, administered by the Wildlife Conservation Board, receives $750,000 annually from a portion of revenue derived by the State from legal wagering on horse races. The funds are directed to implementation of the Wildlife Conservation Law of 1947, and may be expended for a wide variety of fish and wildlife restoration activities, at the discretion of the Board.

California Riparian Habitat Conservation Program.

The California Riparian Habitat Conservation Act (F.C. Sections 1385 et seq.) established this program to protect, preserve, and restore riparian habitat throughout the State through acquisition of interests and rights in land and waters. Funds are granted at the discretion of the Wildlife Conservation Board.

California Wildlife Protection Act of 1990.

This ballot measure, approved in 1990, created the Habitat Conservation Fund and provided for an annual appropriation of $30 million to it from the General Fund. The Wildlife Conservation Board is responsible for administering the annual appropriations of up to $11.5 million to the Habitat Conservation Fund, created by the initiative. Pursuant to FGC section 2786(e), funds may be used for acquisition, restoration, or enhancement of aquatic habitat for spawning and rearing of anadromous salmonids and trout resources. The Board has not recommended significant funding for salmon or steelhead restoration from this account to date, with the exception of Department Proposition 70 funds for salmon stream restoration that were appropriated to the Board for transfer back to the Department, pursuant to annual Budget Act provision, for several years in the mid to late 1990's.

Timber Tax Credit

This legislation (Chapter 166, Statutes of 1996) provides a tax credit to landowners improving fish habitat on their properties. Up to 10 percent of habitat improvement costs approved by the Department may be claimed as a tax credit each year, to a maximum of $50,000 per taxpayer, to an aggregate credit total of $500,000 annually, statewide. Although the program provides no direct funding for salmon or steelhead habitat improvement, it is expected to encourage landowners to do so.

RESTORATION ACTIONS

Since 1982, the Department has spent a substantial amount of money on salmon and steelhead restoration, including over $43 million in grants for habitat restoration, cooperative fish rearing, and educational programs. **Of the $43 million distributed in grants, nearly $39.5 million provided some benefit to steelhead (as well as other anadromous or resident salmonid species. Approximately $2.3 million of the total granted was for projects designed specifically to benefit steelhead populations**. Of this $2.3 million, over $410,000 of Steelhead Report Card funds has been granted for steelhead restoration projects. As of June, 1996, this program has generated over $765,000 for steelhead restoration and has funded 66 projects. These projects include assessment and monitoring, rearing, stream restoration, and education activities and are dispersed throughout the State. A recent report to the California Legislature on the Steelhead Report Card Program accomplishments is attached as Appendix A.

The majority of funds from these various sources have been expended on instream habitat restoration work, particularly on coastal streams. Creation of the Salmon and Steelhead Trout Restoration Account is expected to allow the Department to expand its restoration activities to include badly needed restoration work on upslope areas in California's coastal watersheds. A

description of some of the types of projects that have been funded from the various accounts follows, and a listing of specific projects is attached as Appendix B.

Watershed and Instream Habitat Protection and Restoration

Land-use activities associated with logging, urban development, mining, livestock grazing, and recreation have reduced fish habitat quantity and quality by changing streambank and channel morphology, altering water temperatures, degrading water quality, and blocking access to spawning areas. The Steelhead Plan recognizes that watershed restoration and protection must be a key element in restoration of steelhead populations and recommends specific measures for logging, road construction, suction dredge and gravel mining, and grazing to provide greater protection for instream and riparian areas.

The Steelhead Report Card Program has funded the construction of 30 stream and riparian vegetation restoration projects to increase naturally-spawning steelhead populations through habitat restoration. The Timber Tax Credit Program has overseen projects totaling in excess of $2.7 million for watershed and instream habitat restoration, for which tax credits will be approved.

Artificial Barrier Modification, Ladders, and Fish Screens

Dams and other, primarily human-induced, barriers to adult migration have severely affected steelhead populations throughout the state. In the Central Valley, it is estimated that roughly 90 percent of historical spawning and rearing habitat is above impassable dams. Barrier modification or installation of fish ladders and screens, where appropriate, are high priorities for the Department in its efforts to restore salmon and steelhead populations.

Stream Flow Restoration

There are many streams in California where over-appropriation of water has caused severe impacts to steelhead populations. The recent six-year drought has shown that there is little water to spare for instream uses in many areas of the State. The Department utilizes several regulations and laws to protect and maintain instream flows for the benefit of fish and wildlife, although protection of instream flows is frequently inadequate. The Klamath River below Iron Gate Dam, the Sacramento River below Shasta Dam, the American River below Folsom Dam, the San Joaquin River below Friant Dam, and the Santa Ynez River below Bradbury Dam are a few examples of former and present steelhead waters where severe environmental problems have resulted because of insufficient releases from reservoirs. There have been several favorable court decisions affirming the protection of fish and wildlife under the Public Trust Doctrine, and the Department will continue to seek greater flows for steelhead through regulatory or legal processes.

Monitoring and Assessment

Increased monitoring and assessment of anadromous fish populations has long been a Department goal, but funding has been lacking for this work. With creation of the Salmon and Steelhead Trout Restoration Account, as well as increased staffing sought through budget proposals, it is hoped that work in this area will be expanded.

In 1993-94, approximately $25,000 of Steelhead Report Card funds were spent to monitor adult steelhead escapement into Mill and Deer creeks, two of the last remaining steelhead spawning tributaries in the upper Sacramento River system.

Education

This is another area in which the Department hopes to dramatically expand its efforts. The Commercial Salmon Stamp Account has been the major funding source for this effort, as California's commercial fishing industries well understand that education is key to restoration of anadromous fisheries resources.

Cooperative Rearing

Cooperative rearing is less widespread than in the past. This activity is now restricted to locations where it is either 1) carried out on a temporary basis to provide "seed" stock to areas where habitat restoration will allow reestablishment of natural production; or 2) undertaken on a long-term basis in areas where habitat degradation is so severe that reestablishment of naturally spawning populations is impossible. In all instances, rearing activities are monitored closely by Department staff to ensure compliance of rearing operations with Department and Fish and Game Commission policies and to ensure that rearing maintains genetic integrity of anadromous stocks.

ANGLING

There are approximately 70,000 steelhead anglers in California according to information gathered through the Steelhead Report Card program. Approximately 69% of steelhead angling effort takes place in coastal streams north of the Mattole River (this area corresponds roughly to two steelhead Evolutionarily Significant Units that are proposed for threatened status). In 1994, approximately 52,800 adult steelhead were harvested in California.

Adult steelhead sport harvest statistics gathered through the Steelhead Report Card program indicate that harvest rates may be lower than they were in the 1950's and 60's. An analysis of harvest for the Klamath-Trinity and Sacramento river systems, the two most popular steelhead fisheries in the State, indicate that over-exploitation of wild stocks is not occurring. There is no substantial documentation that angler harvest of adult steelhead is excessive or detrimental on a widespread basis and is causing the statewide decline, therefore, a statewide selective harvest regulation or an annual bag limit does not appear to be warranted.

Since the inception of the Steelhead Project in 1991, the Department has attempted to identify all streams where angling impacts to steelhead populations could be occurring, and has made many recommendations to provide greater protections for steelhead. Most of these recommendations have been implemented, thus we believe that changes necessary to protect steelhead populations from sportfishing impacts have already been made. Some of the more recent angling regulation changes for the north coast and Central Valley include:

- Implementation of a maximum size limit of 22 inches to protect spawning adults in the Sacramento River system.

- Closure of the entire Middle Fork Eel River summer steelhead holding and spawning area. For most of the other summer steelhead populations, there are year-round angling closures on portions of the holding habitat. Also, there are size restrictions and/or season closures on all summer steelhead streams.

- For all north coast streams no more than one steelhead over 22 inches may be taken per day. Most steelhead spawning tributaries on the north coast are closed to fishing year-round.

- Implementation of an eight inch minimum size limit for rainbow trout in anadromous reaches of all north coast streams. Juvenile steelhead typically rear in freshwater for at least one year; therefore, they reach catchable length before migrating to the ocean and are often taken by anglers.

- Mark all steelhead raised in Central Valley hatcheries so that they can be distinguished from wild steelhead. The Steelhead Plan recommends that we mark all hatchery steelhead for information and fishery management purposes. The ESA may require that we mark steelhead for angling purposes (selective harvest). Approximately 1.4 million juvenile steelhead at Coleman, Feather River, Nimbus, and Mokelumne River hatcheries were fin clipped in 1997. A Budget Change Proposal has been submitted to expand this program to all hatcheries statewide beginning in 1998.